Emerge™ ECMS2000U
Digital Workstation Extender

Installer/User Guide

USA Notification

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian Notification

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Japanese Approvals

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Safety and EMC Approvals and Markings

UL, FCC, cUL, ICES, CE, N, GS, IRAM, GOST, VCCI, MIC, C-Tick

Sound Level Measure

The measured sound level of this appliance is 44.7 dB(A).

Die arbeitsplatzbezogene Geräuschemission des Gerätes beträgt 44,7 dB(A).

Avocent Emerge™ ECMS2000U Digital Workstation Extender

Installer/User Guide

Instructions

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Dangerous Voltage

This symbol is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Power On

This symbol indicates the principal on/off switch is in the on position.

Power Off

This symbol indicates the principal on/off switch is in the off position.

Protective Grounding Terminal

This symbol indicates a terminal which must be connected to earth ground prior to making any other connections to the equipment.

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1

Product Overview

Features and Benefits

The Avocent Emerge™ ECMS2000U Extender provides users with a full computer desktop experience from anywhere on the corporate TCP/IP network, while maintaining the computers securely housed in a corporate data center. This desktop experience includes access for the desktop user to keyboard, mouse, video and audio devices.

The Avocent Emerge ECMS2000U Extender consists of:

• The Computer Access Node that connects externally to the remote computer
• The User Access Node that is located at the user's desk
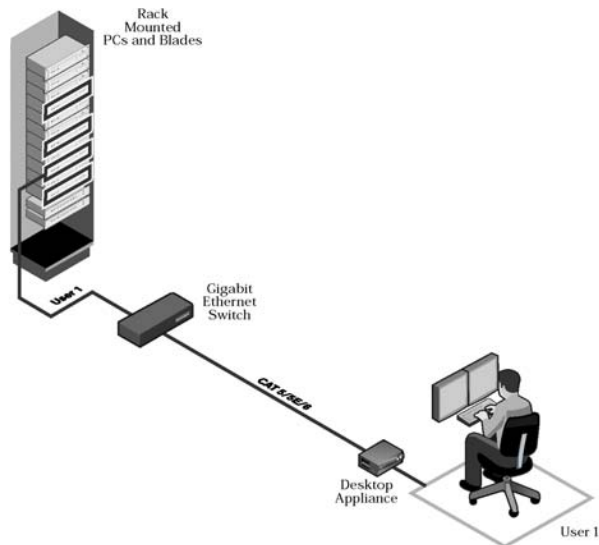
Figure 1.1: Avocent Emerge ECMS2000U Extender - Basic System

Computer Access Node

The Computer Access Node connects externally to the video, audio and USB ports of the remote computer.

The Computer Access Node is attached directly to the remote computer and draws its power directly from two USB ports on the remote computer. This removes the need for additional power supply connections at the rack.

NOTE: If the remote computer cannot supply the required power or if two USB connections are not available, an external power supply (part no. ECMS2000-PSU) can be obtained from Avocent.

The Computer Access Node captures, compresses and encrypts the computer's media streams and transmits them to the User Access Node over a standard TCP/IP network.

User Access Node

The User Access Node enables the desktop user's keyboard, mouse, video, and audio devices to connect to the Avocent Emerge ECMS2000U Extender. It is available as a desktop user station.

Automatic connection

When the User Access Node is powered up, a connection is automatically established with the remote computer via the Computer Access Node. No intervention is required from the user. See *Accessing the System* on page 14.

Ethernet addressing

The User Access Node and the Computer Access Node are IP-addressable devices; this gives you the flexibility to locate back-racked computers anywhere within your enterprise and at any distance from your desktop users. The User Access Node and the Computer Access Node use standard network protocols to transfer data streams between the remote computer and the peripheral devices located at the user's desk. The Avocent Emerge ECMS2000U Extender can operate on a network connection of 100 Mbps or 1 Gbps. For optimum performance a 1 Gbps connection is recommended. For more information see Chapter 2.

Multiplatform support

The Computer Access Node is connected to the remote computer via USB connectors. This enables the Avocent Emerge ECMS2000U Extender to interoperate seamlessly with PC, Sun and Macintosh target computers. PC, Sun and Macintosh USB keyboards can be connected to the User Access Node. PS/2 keyboards and mice can also be used.

You can attach the Avocent Emerge ECMS2000U Extender to computers running the following operating systems:

- Microsoft Windows^{TM}
- Red Hat Linux

- Solaris
- MacOS

The default keyboard drivers for these operating systems are fully supported by the Avocent Emerge ECMS2000U Extender.

Flexible installation

The Avocent Emerge ECMS2000U Extender provides you with the following flexible installation options:

- The User Access Node can be desk mounted or mounted on the back of a monitor
- Installation requires no new drivers or software
- Standard UTP cabling makes installation simple and keeps costs low

Security

The Avocent Emerge ECMS2000U Extender supports Secure Sockets Layer (SSL) over a TCP/IP connection. All media streams transmitted between the User Access Node and the Computer Access Node are encrypted. Password protection is also provided to control access to all administration functions, such as network configuration. See *Authentication* on page 24.

Operations administration and maintenance

The User Access Node incorporates a serial menu that allows you to perform administration and maintenance tasks for both the User Access Node and the Computer Access Node. Examples of tasks you can perform include, configuration of network settings and firmware Flash upgrades. See *The Serial Menu* on page 14.

Flash upgradeable

Upgrade your firmware at any time using the XMODEM or HTTP protocols to ensure that your Avocent Emerge ECMS2000U Extender is always running the most current version available. Both the Computer Access Node and the User Access Node are Flash upgradeable. See *Flash Upgrading your Emerge Digital Workstation Extender* on page 28.

Support for keyboards and mice

USB and PS/2 keyboards and mice are fully supported by the Avocent Emerge ECMS2000U Extender. The system also allows for mix and match of USB and PS/2 peripherals. For example, it is possible to use a USB keyboard in conjunction with a PS/2 mouse. The default keyboard and mouse drivers of the remote computer are fully supported. This enables the Avocent Emerge ECMS2000U Extender to support 2-, 3- and 5-button mice with scroll- and tilt-wheel capability. Composite mouse and keyboard devices are also supported.

USB support

The Avocent Emerge ECMS2000U Extender is compatible with the USB 2.0 standard. The User Access Node provides four USB 2.0 compliant ports that can be used to access USB keyboards, mice and USB hubs. Hot-plugging of USB devices is supported.

NOTE: A hub cannot be used to expand the number of USB ports available.

Audio

The Avocent Emerge ECMS2000U Extender supports CD-quality stereo from the remote computer to peripheral speakers, and mono-quality audio from a peripheral microphone to the remote computer.

Video

Video of 24-bit color depth up to a resolution of 1280 x 1024 at 60 Hz is supported by the Avocent Emerge ECMS2000U Extender. Both CRT and flat-panel LCD monitors are supported, and can be connected to the Avocent Emerge ECMS2000U Extender via a DVI-I video connector. VGA monitors can be attached to the system by using a DVI to VGA adaptor. The system supports DDC version 2B.

Reduced Total Cost of Ownership (TCO)

The Avocent Emerge ECMS2000U Extender delivers significantly lower TCO when compared to traditional distributed computer systems. Centralized maintenance enables greater security and convenience as well as reduced workplace disruption and down-time. IT administration costs are also significantly reduced by housing all PCs in one central location. Relocating the computer away from the user frees up valuable office space and reduces desktop power and heating, ventilation and air conditioning (HVAC) requirements.

Safety Precautions

To avoid potential video and/or keyboard problems when using Avocent products:

*   If the building has 3-phase AC power, ensure that the computer and monitor are on the same phase. For best results, they should be on the same circuit.

To avoid potentially fatal shock hazard and possible damage to equipment, please observe the following precautions:

*   Do not use a 2-wire extension cord in any Avocent product configuration.
*   Test AC outlets at the computer and monitor for proper polarity and grounding.
*   Use only with grounded outlets at both the computer and monitor. When using a backup Uninterruptible Power Supply (UPS), power the computer and the Computer Access Node off the same supply.

NOTE: The AC inlet is the main disconnect.

Installation

2

Getting Started

Before installing your Avocent Emerge™ ECMS2000U Extender, refer to the list below to ensure that you have all the items necessary for installation.

Needed to install the Avocent Emerge ECMS2000U Extender

- User Access Node
- Computer Access Node
- External power supply for the User Access Node
- IEC power cord
- Avocent Emerge ECMS2000U Extender Quick Installation Guide
- UTP cable (not supplied)
- Three-wire serial cable or null modem cable (not supplied)

Needed for non-standard installations

To connect a VGA monitor to the User Access Node:

- A DVI to VGA adaptor (not supplied)

To connect the Computer Access Node to a remote computer that has VGA video output:

- A VGA to DVI-I adaptor (not supplied)

To connect the Computer Access Node to a remote computer that has DVI-D video output:

- A DVI-D to DVI-I adaptor (not supplied)

To power the Computer Access Node if a remote computer does not have two available USB ports:

- An EMCS2000-PSU power supply (not supplied)

Mounting Option

The User Access Node features the following mounting option that allows you to adapt easily to most work environments:

• Mounting to the rear of a flat-panel monitor via a mounting plate accessory

NOTE: Mounting accessories are ordered separately. Contact Avocent for more information.

Installation Options

CAUTION: To reduce the risk of electric shock or damage to your equipment,
disconnect the power from the User Access Node by unplugging the power supply from the electrical outlet.

CAUTION: To reduce the risk of electric shock or damage to your equipment,
power up the remote computer and the User Access Node in the order described in the following procedures.

You can install the Avocent Emerge ECMS2000U Extender in one of two ways:

1. Point-to-point
2. Networked

Point-to-point installation

The following instructions will enable you to install your Avocent Emerge ECMS2000U Extender in a point-to-point configuration. In a point-to-point configuration no administrator setup of the Computer Access Node or the User Access Node is required. This enables you to install the system quickly, directly out-of-the-box. However, if you choose the point-to-point configuration you can install only one Computer Access Node and User Access Node pair on a subnet. If you use this configuration you must also locate both the Computer Access Node and the User Access Node on the same subnet.
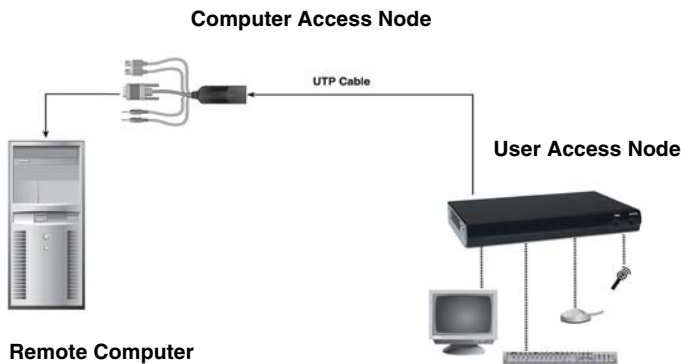
Figure 2.1: Point-to-point Installation

To connect the Computer Access Node:

Before connecting the Computer Access Node to the remote computer, ensure that the resolution and the refresh rate of the remote computer are supported by the Avocent Emerge ECMS2000U Extender system. Set the screen resolution and refresh rate of the remote computer according to Table A.1. Unsupported settings will cause blank video at the receiver.

NOTE: For new information on supported resolutions and refresh rates see www.avocent.com

1. Power down the remote computer.
2. The Computer Access Node has two USB connectors. Connect each of these connectors to a corresponding USB port on the remote computer.
3. Connect the video connector on the Computer Access Node to the appropriately labeled port on the back of the computer.

NOTE: A VGA-only computer can be connected to the Computer Access Node using a VGA to DVI-I adaptor. You must configure the Computer Access Node video settings for VGA through the serial menu. For more information see *Configuring Video Input Settings* on page 36.

4. Connect the Computer Access Node's audio and microphone connectors to the appropriately labeled ports on the back of the computer.

NOTE: For CD-quality audio, you must configure the Computer Access Node and the User Access Node using the serial menu. For more information see *Audio Performance Settings* on page 38.

5. Connect the UTP cable to the Computer Access Node's RJ-45 connector.
6. Power up the computer.
7. Route the other end of the UTP cable to the location you have chosen for the User Access Node. If necessary you can extend the UTP cable via junctions or a hub - subject to normal Ethernet cabling practices.

The Computer Access Node draws electrical power from two USB ports on the remote computer. One USB port is not sufficient to power the Computer Access Node. If you have only one USB port on your remote computer, you will need to order an external power supply for the Computer Access Node from Avocent.

.
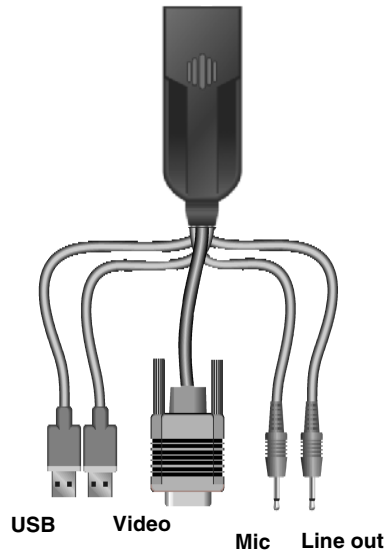
Figure 2.2: Computer Access Node

To connect the User Access Node:

1. Connect your keyboard, monitor, mouse and other peripherals cables to the appropriately labeled ports on the back of the User Access Node.
2. Connect the UTP cable to the RJ-45 port on the back of the User Access Node.
3. Power up the User Access Node. A connection will be automatically established with the remote computer.

NOTE: VGA monitors can be connected to the User Access Node by using a DVI-I to VGA adaptor.
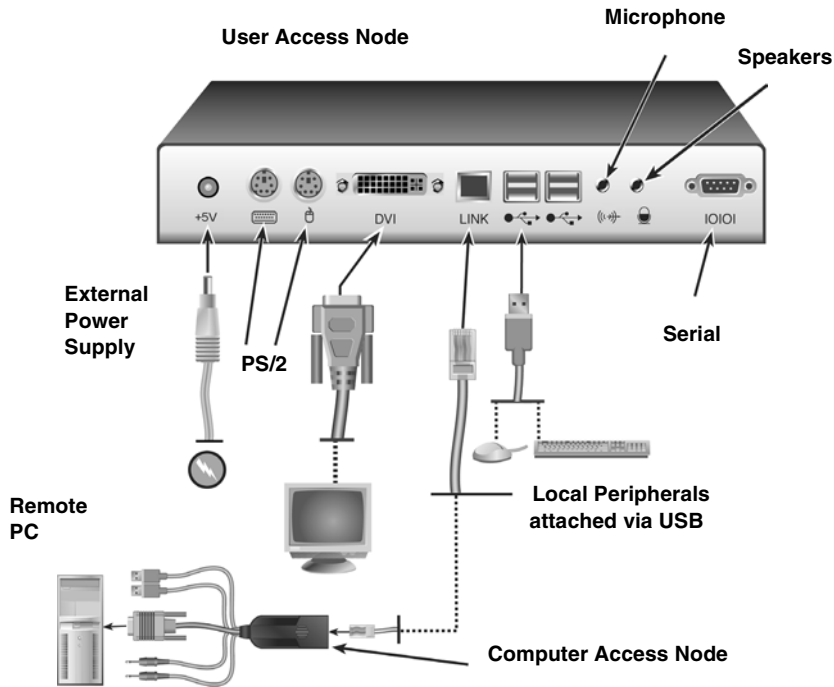
Figure 2.3: User Access Node and Computer Access Node Installation

Connecting Power

The User Access Node features an external power supply. A DC power jack is located on the rear of the User Access Node.

NOTE: Use only the power supply provided by Avocent.

To connect power to the User Access Node:

1. Plug the external power supply's 2.5mm connector into the DC power jack on the rear of the User Access Node.
2. Connect the detachable IEC power cord to the power supply.
3. Plug the IEC power cord into an appropriate wall outlet.

Networked Installation

The following instructions will enable you to install your Avocent Emerge ECMS2000U Extender in a networked configuration. In this installation, multiple Computer Access Nodes and User Access Nodes are attached via the same Ethernet network. In this case, it is important for each unit to be configured with a unique IP address.

Computer Access Nodes and User Access Nodes may be configured for use on a single subnet or for use across routers. Use of routers, however, will cause a slight increase in end-to-end latencies, which may not be acceptable for all applications.
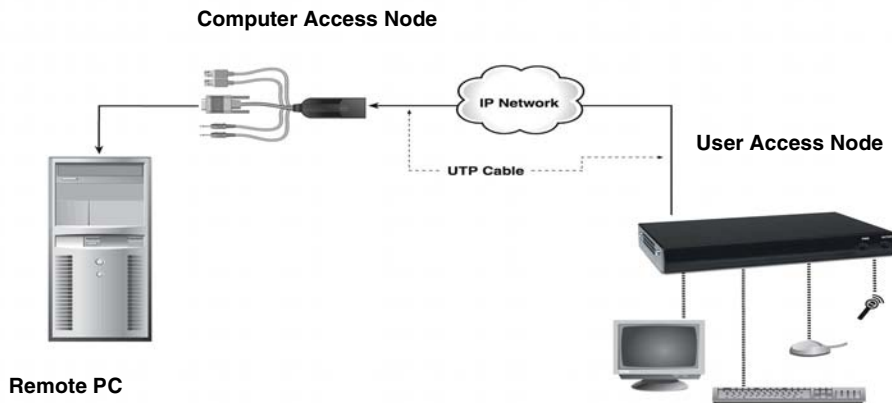
Figure 2.4: Networked Installation

The Avocent Emerge ECMS2000U Extender has been pre-configured with factory-default network settings. If you install only one Avocent Emerge ECMS2000U Extender on a subnet, you do not need to change these default network settings. If you install multiple units on the same subnet, you will need to assign a unique IP address to each unit. This can be done via the serial port. See *The Serial Menu* on page 14.

Table 2.1: Default network settings

Component	IP Address	Type	Default Gateway	Subnet Mask
User Access Node	192.168.13.1	static	0.0.0.0	255.255.255.0
Computer Access Node	192.168.13.2	static	0.0.0.0	255.255.255.0

To install the Avocent Emerge ECMS2000U Extender on a network:

1. Connect the Computer Access Node to the remote computer as described previously in *Point-to-point installation* on page 6. Connect one end of the UTP cable to the Computer Access Node's RJ-45 connector. Connect the other end of the UTP cable to the Ethernet network.

2. Connect the User Access Node to the peripherals as described above in *Point-to-point installation* on page 6. Use a length of UTP cable to connect the User Access Node to the Ethernet network via the RJ-45 connector on the rear of the User Access Node.

3. Power up the User Access Node. A connection will be automatically established with the remote computer.

4. Use the serial menu to re-configure the network settings for the Computer Access Node. For more information on how to do this see, *Configuring Network Settings* on page 16.

NOTE: If the User Access Node and Computer Access Node are to be located on different subnets, configure their network settings before you connect to the network.

NOTE: If there are already Computer Access Node/User Access Node pairs operating on the subnet, configure network settings of new Computer Access Node/User Access Node pairs before connecting them to the network.

5. Use the serial menu to re-configure the network settings for the User Access Node. For more information on how to do this see, *Configuring Network Settings* on page 16.

6. Repeat this procedure for each Computer Access Node and User Access Node pair you wish to install on the network.

CHAPTER

3

Operations

Overview

Operating a computer through the Avocent Emerge^TM ECMS2000U Extender is no different than working directly connected to your computer. All peripherals operate as if directly connected, even though the computer is located at a distance. When you power up the User Access Node, a connection is automatically established with the computer.

While the default settings of your Avocent Emerge ECMS2000U Extender will work with most systems, you may choose to change settings to better fit your system. Internal settings such as connection settings can be configured via the serial menu. See *The Serial Menu* on page 14. You can also upgrade the Avocent Emerge ECMS2000U Extender via the serial menu.

LED Identification

Front panel

There are two blue LEDs on the front panel of the User Access Node. The PWR LED will light up when the User Access Node has been powered up. The ACTIVE LED will blink slowly until the User Access Node establishes a connection with the Computer Access Node. When a connection has been established between the User Access Node and the Computer Access Node, the ACTIVE LED will stop blinking and will remain lit.

Rear panel

Two LEDs are built into both the RJ-45 connector on the rear of the User Access Node, and into the RJ-45 connector on the Computer Access Node. The following table illustrates their operation.

Table 3.1: RJ-45 Connector LEDs

LED	Indication	Meaning
LED 1	Green static	Linked at 1 Gbps
	Green flashing	Linked at 100 Mbps
	Green off	No Link

Table 3.1: RJ-45 Connector LEDs (Continued)

LED 2	Yellow static	Linked but no activity
	Yellow flashing	Transmit/receive activity

Accessing the System

When the User Access Node is powered up, it will automatically initiate a connection with the remote computer.

To access the remote computer:

1. Power up the User Access Node.
2. A series of messages will be displayed on the screen to inform you of the progress of the connection.
3. You will be able to interact with the remote computer as if it were located at your desk.

NOTE: If the remote computer has been powered down, the User Access Node cannot establish a connection.

The Serial Menu

The User Access Node incorporates a serial menu that allows you to:

- Configure network settings for the User Access Node
- Configure network settings for the Computer Access Node
- Set or change passwords
- Upgrade your firmware for the User Access Node and Computer Access Node
- Reset to factory defaults
- Set a session time-out value
- Change the audio performance settings

Accessing the serial menu

You can access the serial menu via the serial port on the back of the User Access Node. All terminal commands are executed through a terminal or PC running HyperTerminal® emulation software or equivalent.

NOTE: In this section of the manual the term "Transmitter" will be used to refer to the Computer Access Node.

NOTE: In this section of the manual the term "Receiver" will be used to refer to the User Access Node.

By default, two passwords are required to access the Avocent Emerge ECMS2000U Extender via the Receiver (User Access Node). One password controls access to the Receiver, the other password controls access to the Transmitter (Computer Access Node). In both cases, the default password is "password". For information on how to change the default password, see *Authentication* on page 24.

Items needed to access the serial menu

- Networked computer with a serial port
- Null-modem serial cable (male DB9) or three-wire serial cable
- HyperTerminal emulation software or equivalent

To access the serial menu:

1. Connect one end of the serial cable to the serial port on the back of the Receiver.
2. Connect the other end of the serial cable to the serial port of your PC.
3. Launch HyperTerminal.
4. Configure the HyperTerminal session for 57600 bits per second, 8 data bits, no parity, 1 stop bit and no flow control.

NOTE: Software (XON/XOFF) flow control is supported. However, it should not be used when using XMODEM.
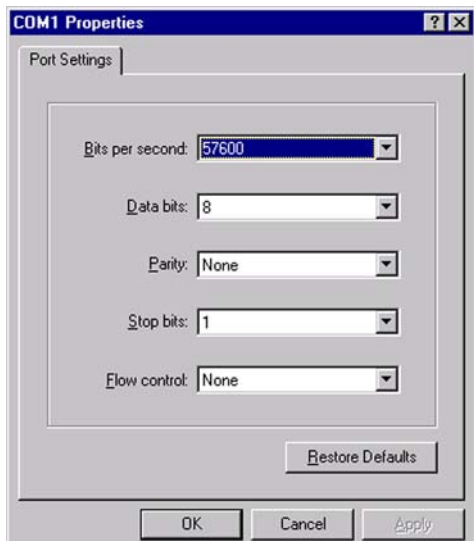
Figure 3.1: Com1 Properties

5. Confirm the HyperTerminal settings.

6.   Press **Enter** to display the serial menu. The Appliance Selection Menu will be displayed.
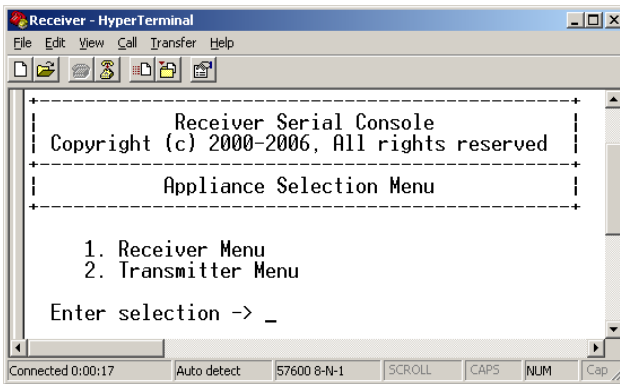
Figure 3.2: Appliance Selection Menu

7.   Select Receiver or Transmitter. You will be prompted to enter a password.

8.   Type the password and press **Enter**.

NOTE: If there is no Transmitter connected to the Receiver, an error message will display and you will be returned to the Appliance Selection Menu.

Navigating the serial menu

The serial menu is driven by a series of simple nested sub-menus. To navigate through the serial menu, simply type the number or letter that corresponds to the option you wish to choose and press **Enter**. This action will bring you to a sub-menu or to a screen where you can make configuration changes. To exit a menu or screen and to confirm any configuration changes you have made, type **0** (zero) and press **Enter**. To navigate back up through the menus, continue to type **0** and press **Enter** at each screen.

Configuring Network Settings

The Avocent Emerge ECMS2000U Extender is shipped with default network settings pre-configured for your Receiver and Transmitter. For more information see *Networked Installation* on page 10. You can change the network settings (from the default values) for your system using the serial menu. If you wish, you can place the Receiver on a different subnet from the Transmitter.

NOTE: Static addressing is the only IP addressing method supported.

NOTE: It is recommended that you configure the network settings for the Transmitter before you configure the network settings for the Receiver.

To configure network settings for the Transmitter:

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.

2. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

3. Type the password and press **Enter**. The Transmitter Main Menu will appear.
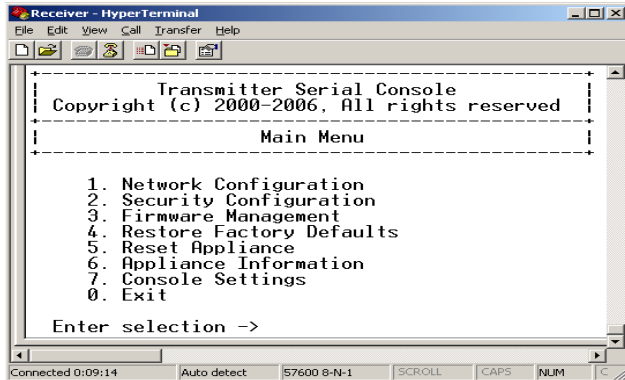
Figure 3.3: Transmitter Main Menu

NOTE: The Reset option in the Transmitter Main Menu applies only to network settings.

4. Choose *Network Configuration*. The Network Configuration Menu will appear.
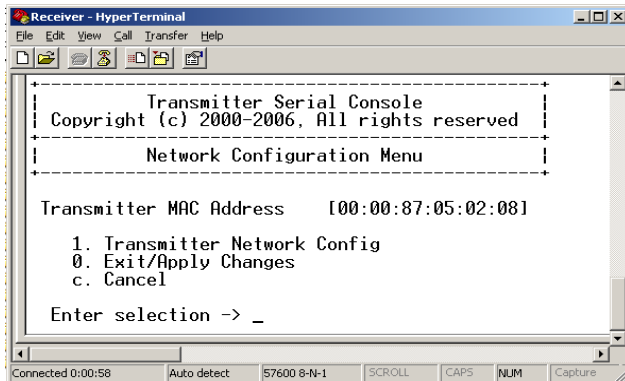
Figure 3.4: Network Configuration Menu

5.   Choose *Transmitter Network Config*. The Transmitter Network Configuration Menu
     will appear.
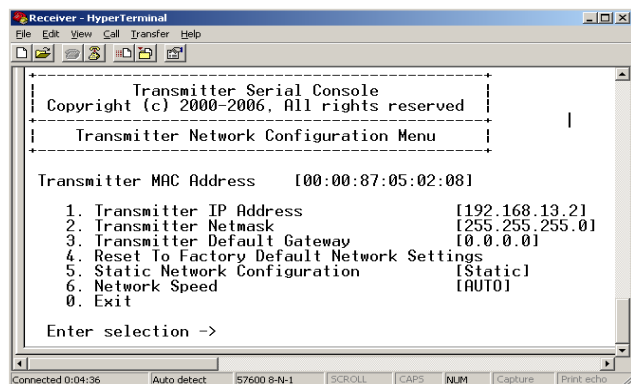
Figure 3.5: Transmitter Network Configuration Menu

6.   Choose *Transmitter IP Address*.

7.   Type a valid IP address. Press **Enter** to return to the Transmitter Network Configuration Menu.

8.   Choose *Transmitter Netmask*.

9.   Type a valid Transmitter Netmask. Press **Enter** to return to the Transmitter Network
     Configuration Menu.

10. Choose *Transmitter Default Gateway*.

11. Type a valid Transmitter Default Gateway. Press **Enter** to return to the Transmitter Network
     Configuration Menu.

12. Type **0** (zero) and press **Enter** to return to the Network Configuration Menu.

13. If you made a mistake and do not wish to save the changes you made to the network settings
     type **C** and press **Enter.**

14. To confirm your changes and apply those settings type **0** (zero) and press **Enter**.

15. A system message will appear that states "Connection to the Transmitter is lost". You will be
     automatically returned to the Appliance Selection Menu screen.

16. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be
     prompted for a password. See *Authentication* on page 24.

17. Type the password and press **Enter**. The Receiver Main Menu will appear.

Figure 3.6: Receiver Main Menu

18. Choose *Network Configuration*. The Network Configuration Menu will appear.
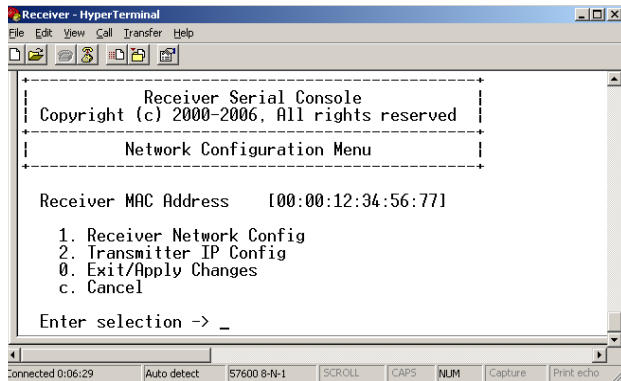
Figure 3.7: Network Configuration Menu

19. Choose *Transmitter IP Config*. The Transmitter IP Config menu will appear. The old Transmitter IP address is displayed beside menu option 1.
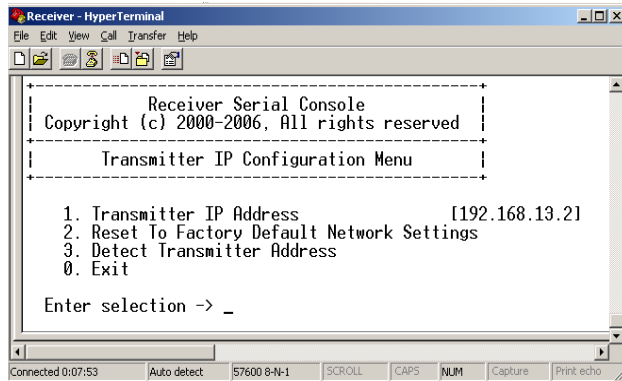
Figure 3.8: Transmitter Configuration Menu on the Receiver

20. Choose *Transmitter IP Address*. Type the new IP address for the Transmitter. Press **Enter** to return to the Transmitter IP Configuration Menu.

21. Type **0** (zero) and press **Enter** to return to the Network Configuration Menu.

22. If you made a mistake and do not wish to save the changes you made to the network settings type **C** and press **Enter**.

23. To confirm your changes and apply those settings type **0** (zero) and press **Enter**.

24. The Receiver will now automatically reset to apply the new network configuration. You will be automatically returned to the Appliance Selection Menu screen. The connection to the Transmitter will be automatically restored.

To configure network settings for the Receiver:

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.

2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

3.   Type the password and press **Enter**. The Receiver Main Menu will appear.
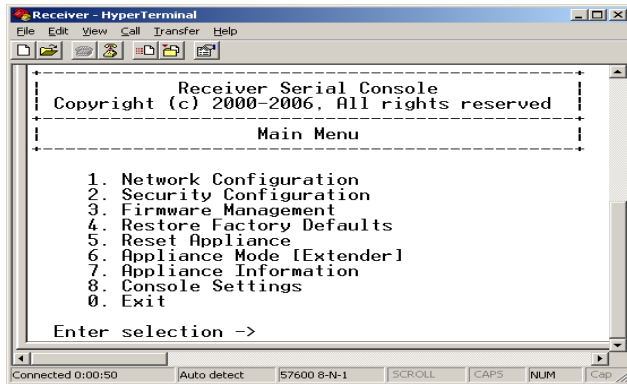
Figure 3.9: Receiver Main Menu

4.   Choose *Network Configuration*. The Network Configuration Menu will appear.
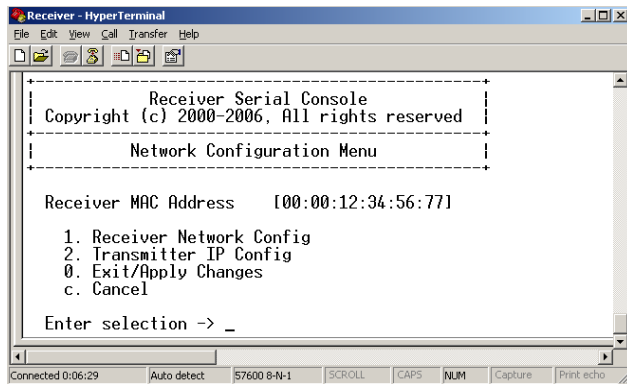
Figure 3.10: Network Configuration Menu

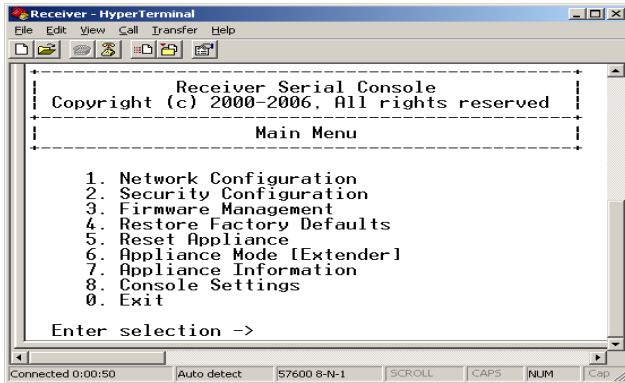5.   Choose *Receiver Network Config*. The Receiver Network Configuration Menu will appear. The current network settings are visible here.
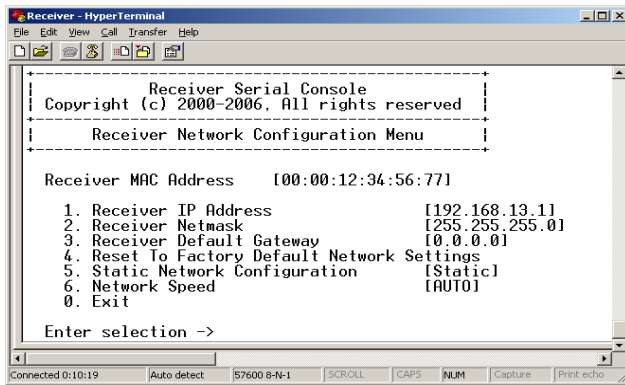
Figure 3.11: Receiver Network Configuration Menu

NOTE: The Reset option in the Receiver Network Configuration Menu applies only to network settings.

6.   Choose *Receiver IP Address*.

7.   Type a valid IP address. Press **Enter** to return to the Receiver Network Configuration Menu.

8.   Choose *Receiver Netmask*.

9.   Type a valid Receiver Netmask. Press **Enter** to return to the Receiver Network Configuration Menu.

10. Choose *Receiver Default Gateway*.

11. Type a valid Receiver Default Gateway. Press **Enter** to return to the Receiver Network Configuration Menu.

12. Type **0** (zero) and press **Enter** to return to the Network Configuration Menu.

13. If you made a mistake and do not wish to save the changes you made to the network settings type **C** and press **Enter.**

14. To confirm your changes and apply those settings, type **0** (zero) and press **Enter**.

NOTE: Changes to network configurations are applied only after you exit the Network Configuration Menu

15. The Receiver will now automatically reset to apply the new network configuration. During reset, the Receiver will drop its connection to the Transmitter. You will be automatically returned to the Appliance Selection Menu screen. The connection will be restored.

Detecting a Transmitter IP Address

In the event that you forget the IP address of a Transmitter, you can use the serial menu to detect the IP address of a Transmitter that is connected to the Receiver.

To detect the IP address of a connected Transmitter:

1. Power down the down the remote computer to which the Transmitter is attached.

NOTE: If the Transmitter receives its power from an external power supply, disconnect the Transmitter from that external power supply.

1. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

2. Type the password and press **Enter**. The Receiver Main Menu will appear.
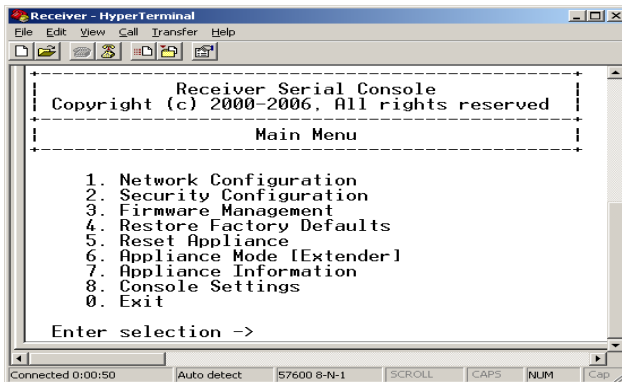

Figure 3.12: Receiver Main Menu

3. Choose *Network Configuration*. The Network Configuration Menu will appear.
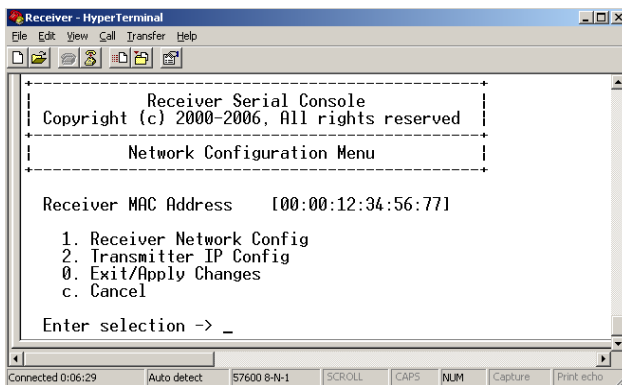
Figure 3.13: Network Configuration Menu

4.   Choose *Transmitter IP Config*. The Transmitter IP Config menu will appear. The old Transmitter IP address is displayed beside menu option 1.
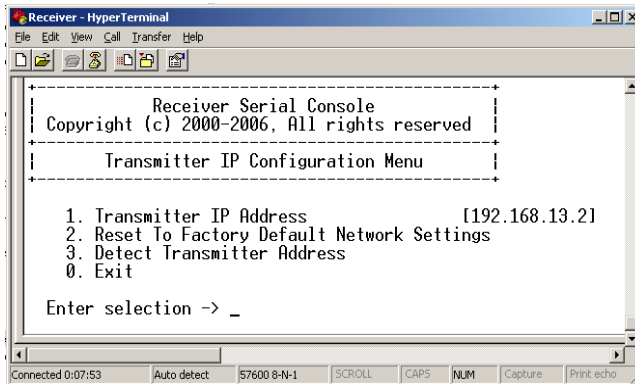
Figure 3.14: Transmitter IP Configuration Menu on the Receiver

5.   Choose *Detect Transmitter Address*. The following message will be displayed, "Connect the Transmitter and the Receiver, then power up the Transmitter."

6.   Power up the Transmitter.

7.   The Receiver will detect the IP address of the connected Transmitter. The Transmitter IP Configuration Menu will refresh, and the current IP address of the connected Transmitter will be displayed beside menu option 1.

NOTE: The detected IP address of the connected Transmitter will not be automatically saved.
You must enter the detected IP address manually, by choosing *Transmitter IP Address* from the Transmitter IP Configuration Menu.

Authentication

By default, two passwords are required to access the Avocent Emerge ECMS2000U Extender via the serial menu. One password is for access to the serial menus that control the Receiver. The other password is for access to the serial menus that control the Transmitter. In both cases, the default password is "password".

Authentication for the Receiver

You can change the password settings for the Receiver through the serial menu via the Receiver Security Configuration Menu.

To access the Receiver Security Configuration Menu:

1.   Activate the serial menu as described in *Accessing the serial menu* on page 14.

2.   Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

3.   Type the password and press **Enter**. The Receiver Main Menu will appear.

4.   Choose *Security Configuration*. The Security Configuration Menu will appear.
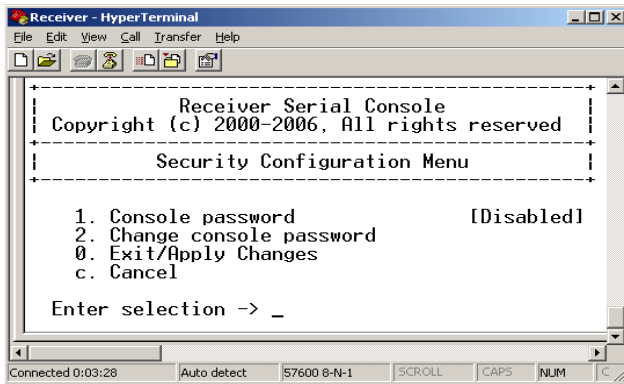
Figure 3.15: The Receiver Security Configuration Menu

To disable or enable the Receiver password:

1.   Choose *Console Password* on the Security Configuration Menu and press **Enter**. If a password had been enabled, this action will disable the password.

2.   If a password had been disabled, you will be prompted to enter a password.

3.   Type the new password and press **Enter**.

NOTE: Each password must consist of ASCII characters and contain between 6 and 64 characters.

---

4.   Confirm the new password. If successful, you will see a message stating that the password has been changed.

5.   Press **Enter**.

6.   To save your changes and exit the menu, type **0** (zero) and press **Enter**.

To change the Receiver password:

1.   Choose *Change Console Password* on the Security Configuration Menu. You will be prompted to enter your current password.

2.   Type your current password and press **Enter**. You will be prompted to enter the new password.

3.   Type the new password and press **Enter**.

NOTE: Each password must consist of ASCII characters and contain between 6 and 64 characters.

---

4.   Confirm the new password. If successful, you will see a message stating that the password has been changed.

5.   Press **Enter**.

6.   To save your changes and exit the menu, type **0** (zero) and press **Enter**.

If you lose your Receiver password:

If you lose your Receiver password, you can reset the system to the default password with the help of Avocent Technical Support.

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.

2. Choose option 1 to access the Receiver menu.

3. You will be prompted to enter your current password.

4. Type **??????** (six question marks) and press **Enter**. The serial menu will generate a code and display it to you. The code is a 16 character hex sequence. The serial menu will also prompt you to enter a Key.
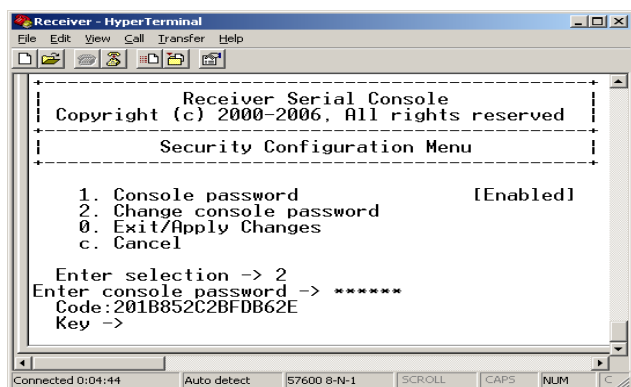
Figure 3.16: Password Reset Mode

5. Contact Avocent Technical Support to obtain the Key. The Technical Support Specialist will ask you for the 16 character hex code. Read out the code exactly as it appears on the serial menu. The Technical Support Specialist will now give you another 16 character hex sequence.

6. In the serial menu at the Key prompt, type the 16 character hex sequence provided to you by Avocent Technical Support. Press **Enter**.

7. The default password is now active.

For information on how to change your password, see *Authentication for the Receiver* on page 24.

Authentication for the Transmitter

You can change the password settings for the Transmitter through the serial menu using the Transmitter Security Configuration Menu.

To access the Transmitter *Se*curity Configuration Menu:

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.

2. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

3. Type the password and press **Enter**. The Transmitter Main Menu will appear.

4.   Choose *Security Configuration*. The Security Configuration Menu will appear.
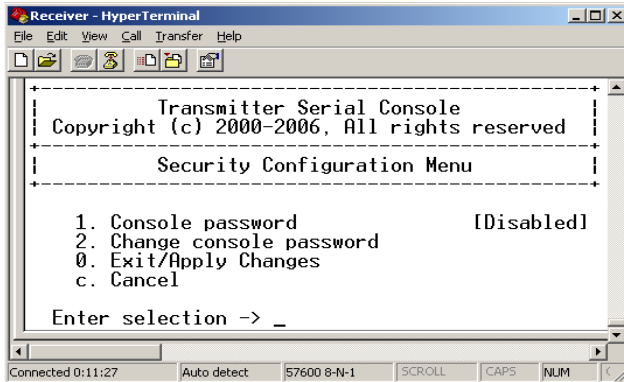
Figure 3.17: Transmitter Security Configuration Menu

To disable or enable the Transmitter password:

1.   Choose *Console Password* on the Security Configuration Menu and press **Enter**. If a password has been enabled, this action will disable the password.

2.   If a password has been disabled, you will be prompted to enter a password.

3.   Type the new password and press **Enter**.

NOTE: Each password must consist of ASCII characters and contain between 6 and 64 characters.

4.   Confirm the new password. If successful, you will see a message stating that the password has been changed.

5.   Press **Enter**.

6.   To save your changes and exit the menu, type **0** (zero) and press **Enter**.

To change the Transmitter password:

1.   Choose *Change Console Password* on the Security Configuration Menu. You will be prompted to enter your current password.

2.   Type your current password and press **Enter**. You will be prompted to enter the new password.

3.   Type the new password and press **Enter**.

NOTE: Each password must consist of ASCII characters and contain between 6 and 64 characters.

4.   Confirm the new password. If successful, you will see a message stating that the password has been changed.

5.   Press **Enter**.

6.   To confirm the new password and exit the screen, type **0** (zero) and press **Enter**.

If you lose your Transmitter password:

If you lose your Transmitter password, you can reset the system to the default password with the help of Avocent Technical Support.

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.
2. Choose option 2 to access the Transmitter menu.
3. You will be prompted to enter your current password.
4. Type **??????** (six question marks) and press **Enter**. The serial menu will generate a code and display it to you. The code is a 16 character hex sequence. The serial menu will also prompt you to enter a Key.
5. Contact Avocent Technical Support to obtain the Key. The Technical Support Specialist will ask you for the 16 character hex code. Read out the code exactly as it appears on the serial menu. The Technical Support Specialist will now give you another 16 character hex sequence.
6. In the serial menu at the Key prompt, type the 16 character hex sequence provided to you by Avocent Technical Support. Press **Enter**.
7. The default password is now active.

For details on how to change your password see *Authentication for the Transmitter* on page 26.

Flash Upgrading your Emerge Digital Workstation Extender

You can Flash upgrade your Receiver and Transmitter. You can Flash upgrade your Avocent Emerge ECMS2000U Extender using either XMODEM or HTTP. The Receiver and Transmitter are upgraded separately using individual upgrade files. The upgrade files are supplied by Avocent. For optimum system performance keep your firmware versions current.

NOTE: Do not use software (XON/XOFF) flow control when using XMODEM.

NOTE: It is recommended that you flash upgrade the Transmitter before you flash upgrade the Receiver.

To Flash upgrade your Transmitter using XMODEM:

1. Download the Transmitter upgrade file from Avocent.
2. Activate the serial menu as described in *Accessing the serial menu* on page 14.
3. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.
4. Type the password and press **Enter**. The Transmitter Main Menu will appear.

5.   Choose *Firmware Management.* The Firmware Management Menu will appear.
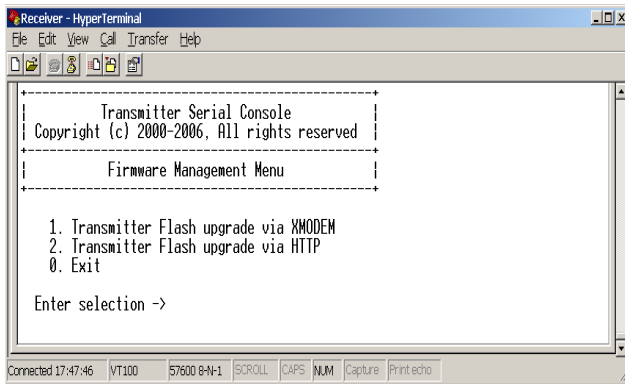
Figure 3.18: Transmitter Firmware Management Menu

6.   Choose *Transmitter Flash Upgrade Via XMODEM.*

7.   Specify the location of the upgrade file and initiate the file transfer.

8.   When the transfer has completed, a message will display stating "Firmware update successful. Resetting Appliance..." During reset the Transmitter will drop the connection to the Receiver. A second system message will appear that states "Connection to the Transmitter is lost". You will be automatically returned to the Appliance Selection Menu screen.

NOTE: If the Transmitter determines that the upgrade file is invalid, the Transmitter cancels the upgrade and maintains the previous firmware version. A message displays indicating that the upgrade has failed.

To Flash upgrade your Transmitter using HTTP:

1.   Download the Transmitter upgrade file from Avocent.

2.   Activate the serial menu as described in *Accessing the serial menu* on page 14.

3.   Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

4.   Type the password and press **Enter**. The Transmitter Main Menu will appear.

5.   Choose *Firmware Management.* The *Firmware Management Menu* will appear.
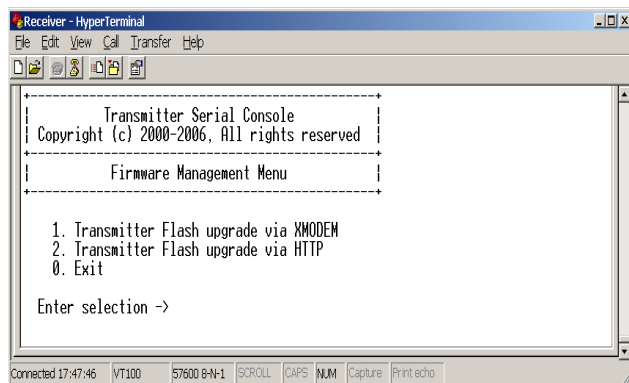
Figure 3.19: Transmitter Firmware Management Menu

6.   Choose *Transmitter Flash Upgrade Via HTTP.* You will be prompted to enter the URL for the upgrade file.

7.   Enter the URL for the upgrade file using the following syntax:
http://<server ip address>[:server port]/<upgrade file path>
For example:
http://192.168.0.1:8080/TX.dld

NOTE: If the server is set up on standard port 80, the port information can be omitted.

8.   To initiate the file transfer press **Enter**. The connection to the Transmitter will be dropped.

9.   When the transfer has completed, a message will display stating "Firmware update successful. Resetting Appliance..." During reset the Transmitter will drop the connection to the Receiver. A second system message will appear that states "Connection to the Transmitter is lost". You will be automatically returned to the Appliance Selection Menu screen.

NOTE: If the Transmitter determines that the upgrade file is invalid, the Transmitter cancels the upgrade and maintains the previous firmware version. A message displays indicating that the upgrade has failed.

To Flash upgrade your Receiver using XMODEM:

1.   Download the Receiver upgrade file from Avocent.

2.   Activate the serial menu as described in *Accessing the serial menu* on page 14.

3.   Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

4.   Type the password and press **Enter**. The Receiver Main Menu will appear.

5. Choose *Firmware Management.* The Firmware Management Menu will appear.

Figure 3.20: Receiver Firmware Management Menu

6. Choose *Receiver Flash Upgrade Via XMODEM*. The connection to the Transmitter will be dropped.

7. Specify the location of the upgrade file and initiate the file transfer.

8. When the transfer has completed, a message will display stating "Firmware update successful. Resetting Appliance..."

9. The connection to the Receiver will be restored.

NOTE: If the Receiver determines that the upgrade file is invalid, the Receiver cancels the upgrade and maintains the previous firmware version. A message will display indicating that the firmware upgrade has failed.

To Flash upgrade your Receiver using HTTP:

1. Download the Receiver upgrade file from Avocent.

2. Activate the serial menu as described in *Accessing the serial menu* on page 14.

3. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

4. Type the password and press **Enter**. The Receiver Main Menu will appear.

5.   Choose *Firmware Management.* The Firmware Management Menu will appear.
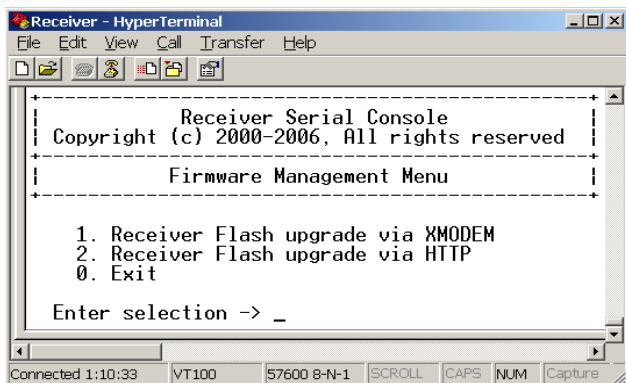
Figure 3.21: Receiver Firmware Management Menu

6.   Choose *Receiver Flash Upgrade Via HTTP.* You will be prompted to enter the URL for the upgrade file.

7.   Enter the URL for the upgrade file using the following syntax:
     http://<server ip address>[:server port]/<upgrade file path>
     For example:
     http://192.168.0.1:8080/RX.dld

NOTE: If the server is set up on standard port 80, the port information can be omitted.

8.   To initiate the file transfer press **Enter**. The connection to the Transmitter will be dropped.

9.   When the transfer has completed, a message will display stating "Firmware update successful. Resetting Appliance..."
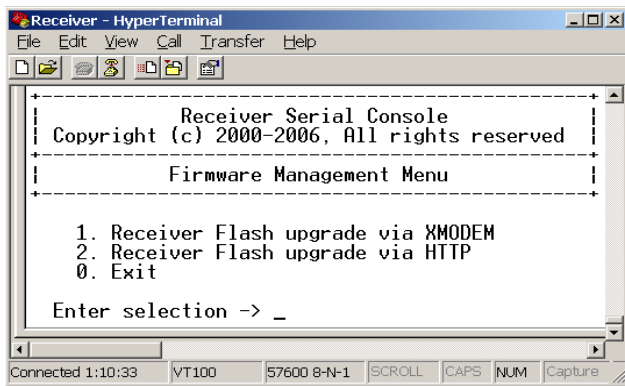
10. The connection to the Transmitter will be restored.

NOTE: If the Receiver determines that the upgrade file is invalid, the Receiver cancels the upgrade and maintains the previous firmware version. A message will display indicating that the firmware upgrade has failed.

Restoring Factory Default Settings

The serial menu enables you to easily restore the factory default settings of both the Receiver and the Transmitter. To view a full list of the factory default settings, see *Factory Default Settings* on page 46.

NOTE: Restoring factory default settings will also reset network settings. Before restoring factory default settings, assess whether this is likely to cause conflicts with other devices on the network.

To restore the Receiver factory default settings:

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.
2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.
3. Type the password and press **Enter**. The Receiver Main Menu will appear.
4. Choose *Restore Factory Defaults.*
5. The Receiver will now automatically reset. You will be automatically returned to the Appliance Selection Menu screen.
6. During reset the Receiver will drop the connection to the Transmitter. When reset is complete the Receiver will restore the connection to the Transmitter using the new settings.

To restore the Transmitter factory default settings:

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.
2. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.
3. Type the password and press **Enter**. The Transmitter Main Menu will appear.
4. Choose *Restore Factory Defaults*.
5. The Transmitter will now automatically reset. During reset the Transmitter will drop the connection to the Receiver. A system message will appear that states "Connection to the Transmitter is lost". You will be returned to the Appliance Selection Menu screen. The connection to the Receiver will be restored.

Resetting the Avocent Emerge ECMS2000U Extender

To reset the Receiver:

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.
2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.
3. The Receiver Main Menu will appear.

4. Choose *Reset Appliance*. The Reset Appliance Menu will appear.

Figure 3.22: Receiver Reset Appliance Menu

5. Choose *Receiver Reset* to initiate the reset. A message will be displayed on the serial menu that states "Resetting appliance...". During reset the connection to the Transmitter is dropped. When the reset is complete, you will be automatically returned to the Appliance Selection Menu. The connection to the Transmitter will be automatically restored.
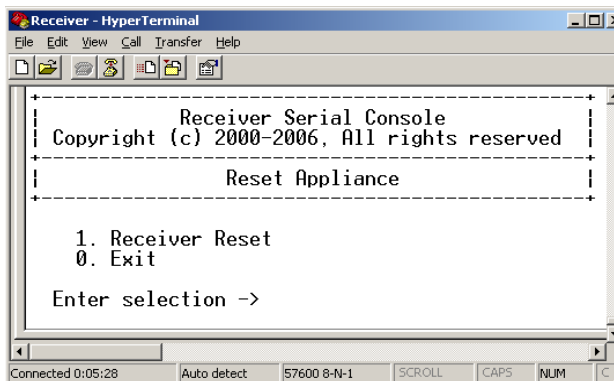
To reset the Transmitter:

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.

2. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

3. The Transmitter Main Menu will appear.

4. Choose *Reset Appliance*. The Reset Appliance Menu will appear.

5. Choose *Transmitter Reset* to initiate the reset. A message will be displayed on the serial menu that states "Resetting appliance...". During reset the Transmitter will drop the connection to the Receiver. A second system message will appear that states "Connection to the Transmitter is lost." You will be automatically returned to the Appliance Selection Menu screen. The connection will be automatically restored.

Viewing System Information

The serial menu enables you to display the firmware release and details of the Receiver and of the Transmitter.

To view Receiver system information:

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.

2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

3. Type the password and press **Enter**. The Receiver Main Menu will appear.

4.   Choose *Appliance Information.* The Appliance Information Menu will appear.
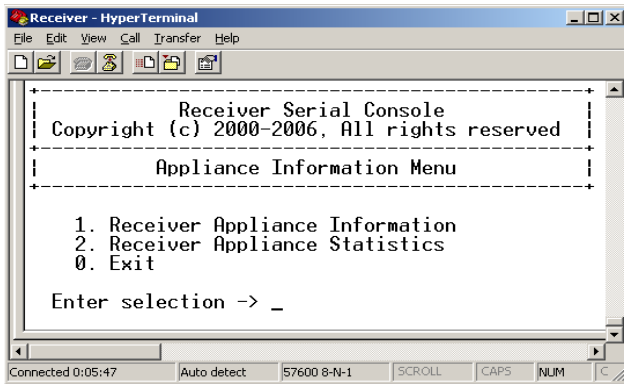
Figure 3.23: Appliance Information Menu

5.   Choose *Receiver Appliance Information*. The Receiver Appliance Information Menu
     will appear.

The Receiver Appliance Information Menu screen contains the following information: Receiver
name; EID number; release version; application; boot and FPGA firmware version numbers; and
the manufacturing part number. All values are read-only.
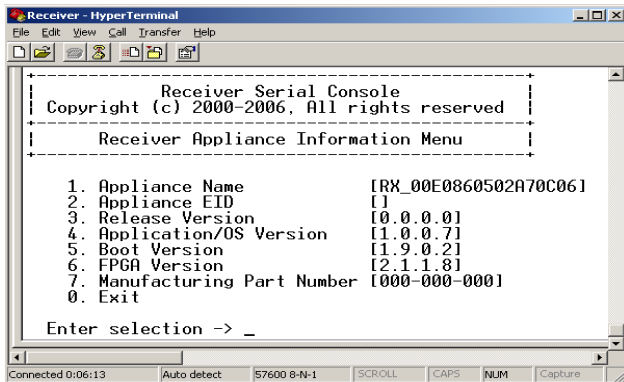
Figure 3.24: Receiver Appliance Information Menu

To view Transmitter system information:

1.   Activate the serial menu as described in *Accessing the serial menu* on page 14.

2.   Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be
     prompted for a password. See *Authentication* on page 24.

3.   Type the password and press **Enter**. The Transmitter Main Menu will appear.

4.   Choose *Appliance Information.* The Appliance Information Menu will appear.

5. Choose *Transmitter Appliance Information*. The Transmitter Appliance Information Menu will appear.

The Transmitter Appliance Information Menu screen contains the following information: Transmitter name; EID number; release version; application; boot and FPGA firmware version numbers; and the manufacturing part number. All values are read-only.

Configuring Video Input Settings

The Avocent Emerge ECMS2000U Extender system is capable of transmitting either digital (DVI) or analog video (VGA) from the remote computer to your monitor. To enable the system to transmit the appropriate video signal for your monitor, you must first configure the video input settings for the Transmitter.

NOTE: Video-display problems may occur if video input settings are not configured correctly.

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.
2. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.
3. Type the password and press **Enter**. The Transmitter Main Menu will appear.
4. Choose *Console Settings*. The Console Settings Menu will display. The current video input setting is displayed beside menu item 1. Target Video
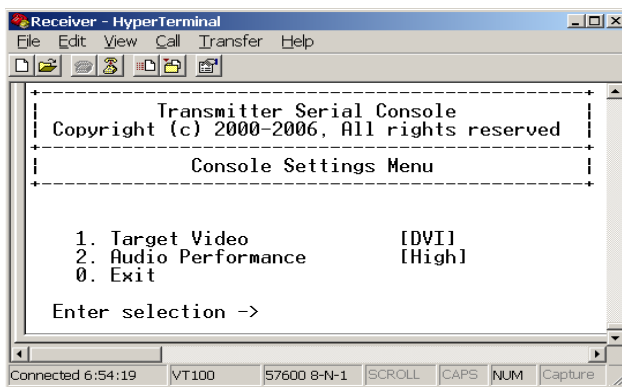
Figure 3.25: Transmitter Console Settings Menu

5. Choose *Target Video*. The Target Video Menu will display.
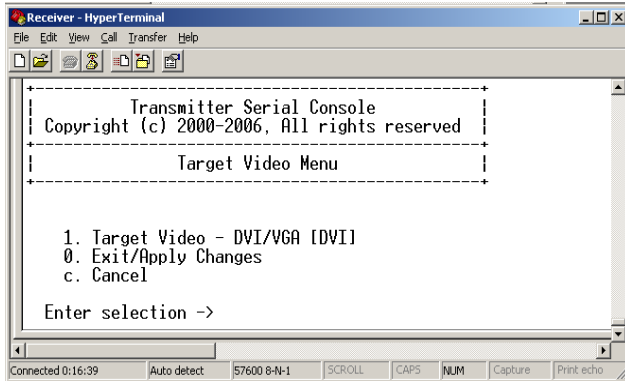
Figure 3.26: Transmitter Target Video Menu

6. To toggle between DVI or VGA, choose menu item 1. Target Video - DVI/VGA.

7. The updated setting will be displayed beside 1. Target Video - DVI/VGA.

8. To save your changes and exit the menu, type **0** (zero) and press **Enter**.
    The unit resets after you press **Enter**.

Session Retry Settings

The Avocent Emerge ECMS2000U Extender is designed to automatically establish a connection between the Receiver and the remote computer. By default, if the Receiver cannot immediately establish a connection with the remote computer it will retry once per second until a connection is successfully established. You can change the default session retry settings using the serial menu.

To access the Session Retry Menu:

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.

2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

3. Type the password and press **Enter**. The Receiver Main Menu will appear.

4. Choose *Console Settings*. The Console Settings Menu will appear.

5.   Choose *Session Retry*. The Session Retry Menu will appear.
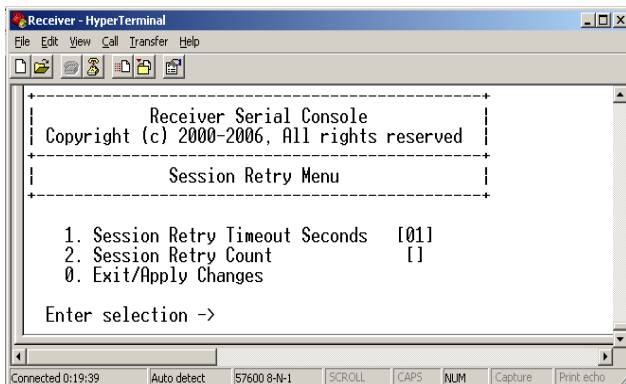
Figure 3.27: Session Retry Menu

To change the retry settings:

1.   Access the *Session Retry Menu* via the serial menu as described above.

2.   To change the time interval between retry attempts, choose *Session Retry Timeout Seconds*. You will be prompted to enter a new timeout value in SS (seconds) format.

3.   Type a value between 1 and 60 (inclusive) and press **Enter**.

4.   To confirm your selection and exit the screen, type **0** (zero) and press **Enter**.

Audio Performance Settings

You can use this option to modify the audio performance settings or to disable audio support. There are three settings available: high, medium and off. The high setting provides the best audio performance and should be used when high network bandwidth is available. The medium setting should be used if network bandwidth is limited or if the network latency is high. If you choose *off* audio support will be disabled.

NOTE: To ensure that audio operates correctly, configure the Receiver and the Transmitter with identical audio performance settings.

### To change the audio performance setting for the Transmitter:

1.   Activate the serial menu as described in *Accessing the serial menu* on page 14.

2.   Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

3.   Type the password and press **Enter**. The Transmitter Main Menu will appear.

4. Choose *Console Settings*. The Console Settings Menu will appear. The current audio performance setting is displayed beside menu item 2. Audio Performance.
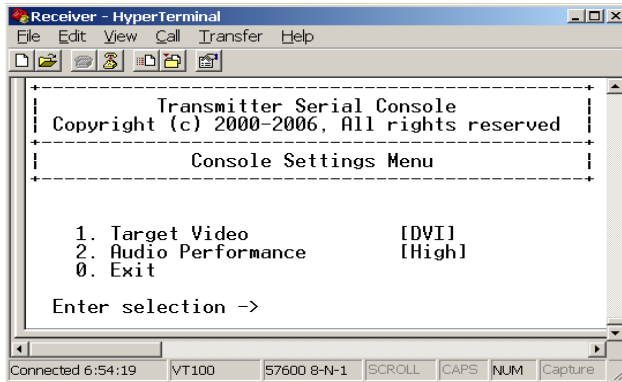
Figure 3.28: Transmitter Console Settings Menu

5. Choose *Audio Performance*. The Audio Performance Menu will appear. This menu shows you the audio settings that you can choose from. The current setting is indicated by an asterisk symbol *

Figure 3.29: Transmitter Audio Performance Menu

6. Type the number that corresponds to the audio setting you wish to apply and press **Enter**.

NOTE: If you choose "off," audio support will be disabled.

7. To confirm your selection and exit the screen, type **0** (zero) and press **Enter**. The unit resets after you press **Enter.**

To change the audio performance setting for the Receiver:

1. Activate the serial menu as described in *Accessing the serial menu* on page 14.

2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See *Authentication* on page 24.

3. Type the password and press **Enter**. The Receiver Main Menu will appear.

4. Choose *Console Settings*. The Console Settings Menu will appear. The current audio performance setting is displayed beside menu item 4. Audio Performance.

Figure 3.30: Receiver Console Settings Menu

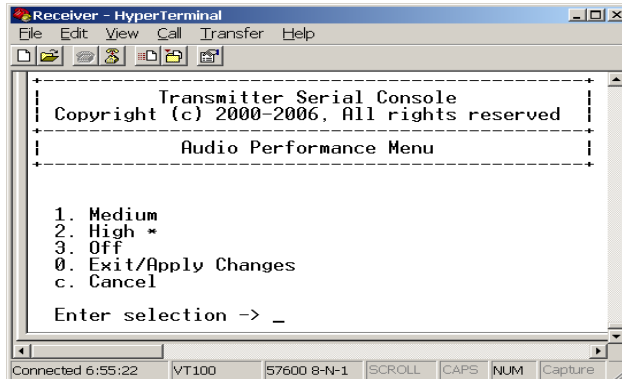5. Choose *Audio Performance*. The Audio Performance Menu will appear.This menu shows you the audio settings that you can choose from. The current setting is indicated by an asterisk *

Figure 3.31: Receiver Audio Performance Menu

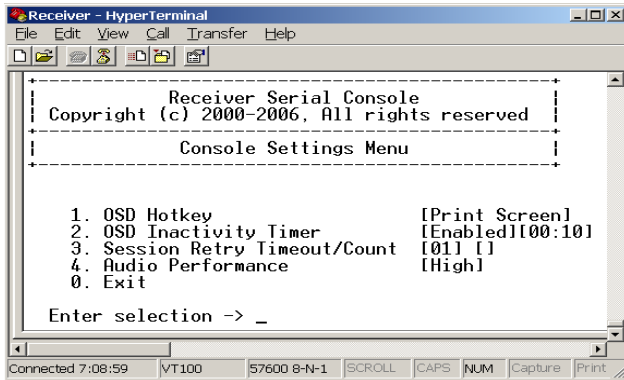6. Type the number that corresponds to the audio setting you wish to apply and press **Enter**.

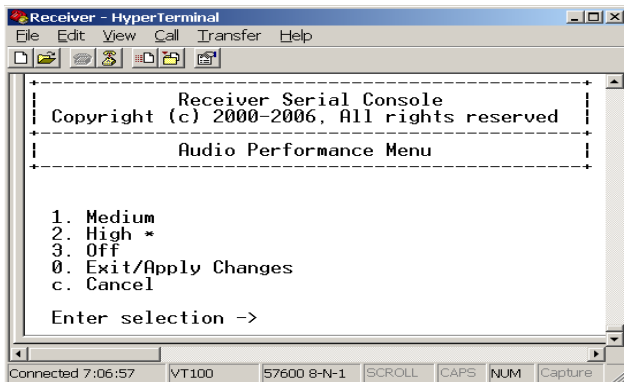**NOTE:** If you choose "off," audio support will be disabled.

7. To confirm your selection and exit the screen, type **0** (zero) and press **Enter**. The unit resets after you press **Enter**.

APPENDICES

Appendix A: Technical Specifications

During the course of this product's lifetime, modifications might be made to its hardware or firmware that could cause these specifications to change without notice.

Table A.1: User Access Node Product Specifications

Network	
Ethernet Standard	Ethernet II
IP Port Usage	Port 16384 - Video Port 16385 - Audio Port 16386 - Keyboard\Mouse Ports 4463, 4464, 4465 - Control
Extension Ports	
Number	1
Connectors	RJ-45
User Ports	
Number	PS/2: 2; USB: 4; DVI-I video: 1; audio microphone: 1; audio line out: 1; power jack: 1
Type	PS/2, USB Type A, DVI-I video
Connectors	6-pin miniDIN, PS/2 keyboard and mouse; USB Type A, USB keyboard and mouse; DVI-I, female; 3.5 mm stereo audio jacks, line out and mic; 2.5 mm DC power jack.
Encryption	
Type	Authenticated SSL
Console Port	
Number	1
Type	Three-wire Serial interface: RX, TX, GND via 16450-compatible UART
Connectors	9-pin D-Shell (DB9)

Table A.1: User Access Node Product Specifications (Continued)

Dimensions	
H x W x D	26.5 x 210 x 130 mm (1.04 x 8.27 x 5.12 in)
Weight	0.7 Kg (1.54 lb) without packaging, cables, power supply and literature
Environmental	
Heat Dissipation	22 W/H
Power Consumption	20 W (including power supplied to USB ports)
AC-input power	100-240 V AC
AC-input current rating	1 A
AC-frequency	50/60 Hz
Operating Temperature	0° to 35° Celsius (32° to 95° Farenheit)
Storage Temperature	-20° to 60° Celsius (-4° to 140° Farenheit)
Transit Temperature	-30° to 60° Celsius (-22° to 140° Farenheit)
Operating Humidity	10 to 90% noncondensing
Storage Humidity	5 to 95%
Supported Hardware	
Peripherals	PS/2 keyboard and mouse, USB keyboard and mouse, speakers, microphone
Keyboard	Standard 104/105/109 keyboards for PC, Macintosh, and Sun USB keyboards for PC, Macintosh and Sun Default keyboard drivers are fully supported for Microsoft Windows, MacOS, Solaris and Red Hat Linux
Mouse	2-, 3-, and 5-button; scroll and tilt wheel

Table A.1: User Access Node Product Specifications (Continued)

Video Resolution	640 x 350 @ 85 Hz 640 x 480 @ 60 Hz 640 x 480 @ 72 Hz 640 x 480 @ 75 Hz 640 x 480 @ 85 Hz 720 x 400 @ 70 Hz 720 x 400 @ 85 Hz 800 x 600 @ 60 Hz 800 x 600 @ 72 Hz 800 x 600 @ 75 Hz 800 x 600 @ 85 Hz 1024 x 768 @ 60 Hz 1024 x 768 @ 70 Hz 1024 x 768 @ 75 Hz 1024 x 768 @ 85 Hz 1152 x 864 @ 75 Hz 1280 x 960 @ 60 Hz 1280 x 1024 @ 60 Hz Check www.avocent.com for the latest list of supported video resolutions and refresh rates.
Video Standard	DDC version 2B
Color Depth	24 Bit
Audio Standard	PC99
Audio Performance	
High Performance	Line out: 44.1 kHz over stereo channels at a resolution of 16 bits Microphone: 44.1 kHz over a single channel at a resolution of 16 bits
Medium Performance	Line out: 8 kHz over stereo channels at a resolution of 16 bits Microphone: 8 kHz over a single channel at a resolution of 16 bits
Target Sync Types (Analog output only)	Separate horizontal and vertical
Safety and EMC Approvals and Markings	UL, FCC, cUL, CE

Table A.2: Computer Access Node Product Specifications

Network	
Ethernet Standard	Ethernet II
Extension Ports	
Number	1
Connectors	RJ-45
Console Ports	
Number	USB: 2; DVI-I video: 1; audio microphone: 1; audio line out: 1
Type	USB Type A, DVI-I video
Connectors	USB, male; DVI-I, male; 3.5 mm stereo audio jacks, line out and mic; 2.5 mm DC power jack.
Encryption	
Type	Authenticated SSL
Dimensions	
H x W x D	68 x 21 x 153 mm (2.68 x 0.83 x 6.02 in)
Weight	0.3 Kg (0.66 lb) including cables
Environmental	
Heat Dissipation	22 W/H
Power Consumption	6 W
AC-input power	100-240 V AC
AC-input current rating	1 A
AC-frequency	50/60 Hz
DC-input power	5 V
DC-input current rating	1.1 A
Operating Temperature	0° to 35° Celsius (32° to 95° Farenheit)
Storage Temperature	-20° to 60° Celsius (-4° to 140° Farenheit)
Transit Temperature	-30° to 60° Celsius (-22° to 140° Farenheit)
Operating Humidity	10 to 90% noncondensing
Storage Humidity	5 to 95%

Table A.2: Computer Access Node Product Specifications (Continued)

Supported Hardware	
Video Resolution	CRT 1280 x 1024 @ 60 Hz LCD 1280 x 1024 @ 60 Hz
Video Standard	DDC version 2B
Color Depth	24 Bit
Audio Standard	PC99
Audio Sampling	44.1 kHz over a single channel at a resolution of 16 bits
Target Sync Types (Analog input only)	Separate horizontal and vertical
Safety and EMC Approvals and Markings	UL, FCC, cUL, CE

Appendix B: Factory Default Settings

Table B.1: Avocent Emerge ECMS2000U Extender

User Access Node	
Name	RX_<MAC address>
IP Address	192.168.13.1
Default Gateway	0.0.0.0
Netmask	255.255.255.0
OSD Hotkey Sequence	PRINT SCREEN
OSD Inactivity Timer	00 hours 10 minutes
OSD Inactivity Check Box	Enabled
Session Inactivity Timer	00 hours 10 minutes
Session Inactivity Check Box	Disabled
Session Retry Timeout	1 second
Audio Performance	Medium
Network Speed	Auto-Negotiate
Password	'password'
Computer Access Node	
Name	TX_<MAC address>
IP Address	192.168.13.2
Default Gateway	0.0.0.0
Netmask	255.255.255.0
Audio Performance	Medium
Network Speed	Auto-Negotiate
Password	'password'
Video	DVI

Appendix C: Technical Support

Our Technical Support staff is ready to assist you with any installation or operating issues you encounter with your Avocent product. If an issue should develop, follow the steps below for the fastest possible service.

To resolve an issue:

1. Check the pertinent section of this manual to see if the issue can be resolved by following the procedures outlined.

2. Check our web site at www.avocent.com/support to search the knowledge base or use the on-line service request.

3. Call the Avocent Technical Support location nearest you.

Please have the product serial number available when contacting Avocent Technical Support.

Appendix D: Troubleshooting

No power status light on User Access Node

- Verify that the power supply is plugged in correctly.
- Ensure that the power cable from the Avocent-supplied power supply is securely plugged into the User Access Node.

No video on monitor attached to User Access Node

- Verify that the monitor attached to the User Access Node has power.
- Ensure that the video cable from the monitor is securely plugged in to the correct connector on the User Access Node.
- Verify that the remote computer is powered.
- Confirm that a network connection exists between the Computer Access Node and User Access Node.
- Confirm that the IP address used by the Computer Access Node has not been assigned to a second device on the network.
- Confirm that the IP address used by the User Access Node has not been assigned to a second device on the network.
- Verify that the Computer Access Node is drawing sufficient power from the USB connections on the remote computer and that it has booted correctly:
  - If the green LED on the Computer Access Node is on, the Computer Access Node is drawing sufficient power.
  - If the Computer Access Node cannot draw sufficient power from the remote computer you will need to obtain an external power supply unit for the Computer Access Node from Avocent. If connected through a USB hub, ensure that the hub can supply enough power.
- Verify that the correct video setting has been configured in the Computer Access Node serial menu:
  - If the remote computer provides DVI only video, verify that the Computer Access Node serial menu has been configured for DVI. Then restart the remote computer.
  - If the remote computer provides VGA only video, verify that the Computer Access Node serial menu has been configured for VGA. Then restart the remote computer.
- The Computer Access Node has an internal fan. Verify that the fan is functioning.
- Cycle power to the User Access Node. An informational message should appear on the monitor for a brief moment. If the message does not appear, check the monitor by plugging the video cable from the monitor directly into the remote computer to verify that the monitor is working and that the remote computer is generating active video. If this is functioning, check that the display settings for your remote computer are set no higher than a resolution of 1280 x 1024 at 60 Hz refresh rate. If the monitor does not function correctly, replace it.

- If the Computer Access Node has been power cycled (by unplugging the USB cables), ensure that all other cables are disconnected before reconnecting the Computer Access Node. Ensure that you connect the USB cables first.

No mouse or keyboard operation from peripherals attached to User Access Node

- Ensure that the mouse and keyboard cables are connected to the correct PS/2 or USB ports on the User Access Node. Match the connector color codes (green for mouse and purple for keyboard).
- Ensure that both of the USB connectors from the Computer Access Node are securely connected to the correct connectors on the remote computer.
- If the remote computer can provide only one USB port for the Computer Access Node:
  - Use an external power supply for the Computer Access Node
  - Ensure that the Computer Access Node USB cable labeled "2" is attached to the available USB port of the remote computer
- Ensure that the correct keyboard layout is configured on the remote computer for the keyboard you are using.
- Retest the mouse and keyboard by connecting them directly to the remote computer and rebooting. If one does not function correctly, replace it.

No audio from speakers attached to User Access Node

- Ensure that the audio cable is securely plugged into the line-out port of the remote computer (should be color-coded green).
- Ensure that the speaker cable is securely plugged into the line-out port of the User Access Node.
- Verify that the audio sample rate has not been set to "off" for either the Computer Access Node or the User Access Node. See *Audio Performance Settings* on page 38.
- Ensure that the same audio sample rate has been set for both the Computer Access Node and the User Access Node. See *Audio Performance Settings* on page 38.
- Verify that the speakers are powered.
- Retest the speakers by connecting them directly to the remote computer. If they do not function correctly, replace them.

Poor sound quality from speakers attached to User Access Node

4. Ensure that the same audio sample rate has been set for both the Computer Access Node and the User Access Node. See *Audio Performance Settings* on page 38.

Poor video quality on monitor attached to User Access Node

- Reset video by pressing **<F11>**.

- Ensure that the video cable from the monitor is securely plugged in to the correct connector on the User Access Node.
- Check the video quality using a different monitor.

Connection to remote computer is lost

- Verify that the network cable is securely connected to the RJ-45 connector at the rear of the User Access Node.
- Verify that the User Access Node is linked to the network and that it is receiving data. See *LED Identification* on page 13.
- Verify that the remote computer is powered.
- Ensure that both of the USB connectors from the Computer Access Node are securely connected to the correct connectors on the remote computer.
- Verify that the Computer Access Node is drawing sufficient power from the USB connections on the remote computer and that it has booted correctly:
  - If the green LED on the Computer Access Node is on, the Computer Access Node is drawing sufficient power.
  - If the Computer Access Node cannot draw sufficient power from the remote computer, obtain an external power supply unit for the Computer Access Node from Avocent.
- The Computer Access Node has an internal fan. Verify that the fan is functioning.
- Ping the Computer Access Node from another PC on the network to ensure it is connected.
- Reset the Computer Access Node. See *Resetting the Avocent Emerge ECMS2000U Extender* on page 33.
- Reset the User Access Node. See *Resetting the Avocent Emerge ECMS2000U Extender* on page 33.
- Verify that the Ethernet network is fully operational.

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